

Solution Quiz 1

EE312 Semester 1/2019

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Question 1.1

4 points

$$y_{trend} = 100 + 3.5 t \quad (1)$$

The slope of this trend line ($\frac{d}{dt}y_{trend}$) which is 3.5 can be interpreted as additional output trend as time pass. Economically, the output trend increase by 3.5 unit for every one unit of time (1 quarter)

$$\ln y_{trend} = 100 + 0.01 t \quad (2)$$

The slope of this trend line ($\frac{d}{dt}\ln y_{trend}$) which is 0.01 can be interpreted as a growth of output trend as time pass. Economically, the output trend grow by 0.01, increase by 1%, for every one unit of time (1 quarter)

Question 1.2

3 points

As Q1.1, the slope of the second trend equation is the growth of output trend and it is constant. So the priori assumption of the research should be constant growth of output trend.

Question 1.3

3 points

There are two components of the output, Long-run trend and cyclical component.

$$y_{actual} = y_{trend} + y_{cyclical} \quad (3)$$

When the $t = 100$,

$$\begin{aligned}y_{trend} &= 100 + 3.5 (100) \\ &= 450 \\ y_{actual} &= 140 \\ y_{cyclical} &= y_{actual} - y_{trend} && \text{from (3)} \\ &= 140 - 450 = -310\end{aligned}$$

The $y_{cyclical}$ is -310 . The deviation from trend also can be computed as percentage or $-\frac{310}{450}(100\%) \approx -69\%$. The actual output is below the trend of output. We are facing the recession period of business cycle.